

REMARKS

In response to the Office Action dated March 15, 2005, the following argumentation is presented. Reexamination and reconsideration of the claims as originally filed is respectfully requested in light of Applicants' response to the Office Action.

On page 2 of the Office Action, claims 1-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,571,114 to Devanaboyina.

Applicants respectfully traverse the rejections.

Three criteria must be met to establish a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142.

The Examiner rejects independent claim 1 as anticipated by Devanaboyina.

Pending claim 1 provides:

A propulsion apparatus for transport of accessory devices within body cavities or canals, sections of pipe, lumens, and other generally tubular spaces and environments, comprising:

a toroid, the toroid being a fluid-filled, enclosed ring formed of a flexible material, the enclosed ring defining a central cavity, having an interior volume and presenting an exterior surface and an interior surface

which move continuously in opposite directions when the apparatus is in motion;

a frame formed of a support structure located within the interior volume of the enclosed ring, a housing structure concentrically and coaxially located relative to the support structure and disposed in the central cavity of the enclosed ring; and

a series of at least two sets of interlocking rollers or skids located on the support and housing structures, the rollers or skids being located so as to maintain the two structures in a fixed spatial relationship with the flexible material of the enclosed ring being positioned between the two structures and the rollers or skids located thereon.

The structural feature in Devanabyina referred to by the Examiner as teaching or suggesting a toroid is that of a “sheath.” However, Devanaboyina’s “sheath” does not teach, nor does it suggest, a toroid but instead describes a looping belt or series of looping belts that loop continuously parallel to the implement. This, by definition, fails to form a toroid as described and defined and claimed by Applicants as a fluid filled and enclosed ring consisting of a single exterior surface and a single interior surface. Devanaboyina clarifies his “sheath” structural disclosure by providing a list of examples including, “...conveyor belt, tractor tread, or caterpillar wheel often used on a military tank or other heavy equipment. Another example of the sheath or sheath loop useful in the present invention is a chain or multilinked mechanism. Thus the word ‘chain’ can be substituted herein for ‘loop’ or ‘sheath’.” (see Col 2, Line 59 – Col 3, Line 2; and Fig. 1 and Fig 3). Significantly, none of the listed structures meet Applicants’ definition of a

toroid, i.e., an entirely closed fluid filled ring consisting of a single exterior surface and a single interior surface. Finally, Devanaboyina further discloses a “sheath loop” as a belt which is presented as an open structure and not a fully enclosed bladder and certainly incapable of being fluid filled. Thus, Applicants’ claimed element wherein the toroid is a fluid-filled, enclosed ring is not disclosed by the cited reference, not is such structure suggested by Devanaboyina.

Moreover, Devanaboyina discloses that, “[a]s the number of chains or sheaths on the shank of the implement 12 increases, the maneuverability of the implement is improved.” (see Col. 6, Line 18 – Line 21). A toroidal shape as described by Applicants cannot be increased in number as described by Devanaboyina since it already would fully encircle the shank with its exterior surface. In addition, he describes an “anchoring means” whereby the sheath passes around an anchor that is attached to the elongated body (see Col 2, lines 35-46 and Fig. 2, element 17). The cited reference thus teaches away from Applicants’ claimed invention.

Devanaboyina further describes his device in Claims 1,9 and 18 to be comprised of such an anchoring means (see Col 7, Line 67 – Col 8, Line 17; Col 8, Line 50 – Col 9, Line 4 and Col 9, Line 39 – Col 10, Line 11). Use of such an anchoring means is not compatible with an enclosed toroidal ring or bladder because it would require penetrating the toroid surface, thus teaching away from the Applicants’ disclosure.

It is the use of an enclosed toroidal ring and a means of propelling it without penetrating or compromising its surface that are unique, not obvious and are the basis of the inventive steps needed to create the device described by Applicants. It is impossible to use an enclosed toroidal ring with an anchor as described by

Devanaboyina where the anchoring posts are attached to the elongated body. This is because a toroid is completely enclosed and to pass around an anchoring post as described by Devanaboyina (see Col. 6, Line 33; Fig 1 and Fig. 2) would require the toroid be compromised and broken into multiple pieces in which case it would no longer be an enclosed toroidal ring.

To use a toroidal ring and propel it as described by Applicants at paragraphs 0007, 0008, 0033 and 0036 a frame, as claimed, is required. Applicants' frame may consist of a support structure located within the interior volume of the enclosed ring and a housing structure located outside of the interior volume but inside of the central cavity (see Paragraph 0009). These two structures must remain physically separated by the toroidal ring allowing it to maintain its integrity as a toroid and thus the support structure cannot be anchored or attached as described by Devanaboyina. The two structures must also maintain a fixed spatial relationship as described by Applicants at paragraphs 0009 and 0010. To accomplish this at least two sets of interlocking rollers or skids are needed and must be located on the support and housing structures with the flexible material of the enclosed ring being positioned between both structures and their respective rollers and/or skids (see Applicants' paragraph 0009). The toroidal ring must also have a motive force applied to it. This can be accomplished by a variety of means described by Applicants at paragraph's 0011, 0013, 0035 and 0036).

For at least the reasons set forth above, the Applicants respectfully assert that Devanaboyina does not disclose all the claim features set forth in Applicants' independent claim 1. Therefore, claim 1 is allowable over the cited reference.

Applicants respectfully request the withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina.

Dependent claims 2-12, which are dependent from independent claim 1, were also rejected as being unpatentable over Devanaboyina. While the Applicants do not acquiesce to the particular rejections to these dependent claims, it is asserted that these rejections are moot in view of the remarks made in connection with independent claim 1. These dependent claims include all of the features of the base claim and any intervening claims, and recite additional features which further distinguish these claims from the proposed combination of references. Therefore, dependent claims 2-12 are also in condition for allowance.

Applicants respectfully request withdrawal of the rejection of dependent claims 2-12 under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina.

Independent claims 13-17 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina. With regard to claims 13, 14 and 16, as discussed above, Devanaboyina fails to teach or suggest a toroid that is fully enclosed and fluid filled.

For at least the reasons set forth above, the Applicants respectfully assert that Devanaboyina does not disclose all the claim features set forth in Applicants' independent claims 13, 14 and 16. Therefore, claims 13, 14 and 16 are allowable over the cited reference. Applicants respectfully request the withdrawal of the rejection of claims 13, 14 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina.

Independent claim 15 provides:

An endoscopic, medical procedure; comprising the steps of:

introducing a self-propellable, endoscopic apparatus into the rectum and anal canal of a patient, the apparatus being equipped with at least one accessory device and connected to at least one external support device;

powering the apparatus to propel the apparatus forward through the anal canal and into the colon up to a location in the colon at which at least one medical procedure is to be performed;

performing the at least one medical procedure with the at least one accessory device;

optionally, serially propelling the apparatus to another location in the colon at which the at least one medical procedure is to be performed and performing said at least one medical procedure;

propelling the apparatus backward through the colon and into the anal canal; and

removing the apparatus from the patient.

Devanaboyina fails to disclose an apparatus or method wherein the device, e.g., endoscope, is self-propellable and wherein the apparatus is capable of powering to the location of the medical procedure as claimed by Applicants. Devanaboyina's apparatus is capable of advancement within a lumen, but is neither self-propellable nor capable of powering to a lumen location.

For at least the reasons set forth above, the Applicants respectfully assert that Devanaboyina does not disclose all the claim features set forth in Applicants'

independent claim 15. Therefore, claim 15 is allowable over the cited reference. Applicants respectfully request the withdrawal of the rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina.

Finally, claim 17 provides

An endoscopic procedure; comprising the steps of:

introducing a self-propellable, endoscopic apparatus into the generally tubular space or environment, the apparatus being equipped with at least one accessory device and connected to at least one external support device;

powering the apparatus to propel and navigate the apparatus forward in the tubular space to a location at which at least one endoscopic procedure is to be performed;

performing the at least one endoscopic procedure with the at least one accessory device;

optionally, serially propelling the apparatus to another location in the tubular space at which the at least one endoscopic procedure is to be performed and performing said at least one endoscopic procedure;

propelling the apparatus backward through tubular space; and

removing the apparatus from the tubular space.

As described in connection with claim 15, Devanaboyina fails to disclose an apparatus or method wherein the device, e.g., endoscope, is self-propellable and wherein the apparatus is capable of powering to the location of the medical

procedure as claimed by Applicants. Devanaboyina's apparatus is capable of advancement within a lumen, but is neither self-propellable nor capable of powering to a lumen location.

For at least the reasons set forth above, the Applicants respectfully assert that Devanaboyina does not disclose all the claim features set forth in Applicants' independent claim 17. Therefore, claim 17 is allowable over the cited reference. Applicants respectfully request the withdrawal of the rejection of claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Devanaboyina.

CONCLUSION

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. The amendments clarify the patentable invention without adding new subject matter. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

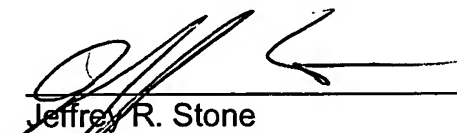
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Jeffrey R. Stone at 952 253-4130.

Respectfully submitted,

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